

REMARKS

In response to the Office Action mailed August 17, 2005, Applicants respectfully request reconsideration. To further the prosecution of this Application, Applicants submit the following remarks and have added new claims. The claims as now presented are believed to be in allowable condition.

Claims 1-23 were pending in this Application. By this Amendment, claims 24-27 have been added. Accordingly, claims 1-27 are now pending in this Application. Claims 1, 6, 12, 18, and 19 are independent claims and the remaining claims are dependent claims

Rejections under §102

Claims 1-4, 6-9, 11-15, and 17-23 were rejected under 35 U.S.C. §102(e) as being anticipated by U.S. Patent No. 6,711,019 to Manabe et al. The Applicants respectfully traverse each of these rejections and request reconsideration. The claims are in allowable condition.

Independent claim 1 recites an air stream distribution apparatus that includes a base configured to couple with a circuit board where the base defines a first end and a second end. The apparatus also includes a plurality of deflectors in communication with the base and arranged in series between the first end and the second end defined by the base where each of the plurality of deflectors defines a leading edge. The leading edge of each of the plurality of deflectors defines a height relative to a plane defined by the base with the height defined by the leading edge of each deflector increasing along an air stream direction between the first end and the second end defined by the base. Each of the plurality of deflectors is configured to *direct a corresponding portion of an air stream toward a respective area of the circuit board.*

Independent claim 19 recites a method for manufacturing an air stream distribution apparatus that recites forming, from a material, a base configured to couple with a circuit board, the base defining a first end and a second end. The method also recites forming, from the material, a plurality of deflectors in communication with the base and arranged in series between the first end and the second end defined by the base where each of the plurality of deflectors defining a leading edge. The leading edge of each of the plurality of deflectors define a height relative to a plane defined by the base where the height defined by the leading edge of each deflector increases along an air stream direction between the first end and the second end defined by the base. Each of the plurality of deflectors is configured to *direct a corresponding portion of an air stream toward a respective area of the circuit board.*

Manabe generally relates to a fitting for mounting a cooling apparatus to a micro-processing unit (MPU) and illustrates in Fig. 1 a heat sink-fan assembly that utilizes the fitting. The assembly includes a heat sink 3 fixed to an MPU 2 via the mounting fitting 5. The heat sink 3 includes a base part 3a and a fin part 3b that contacts the MPU 2. As the MPU 2 generates heat, the heat sink receives the heat from the MPU 2 and radiates the heat to the ambient air (column 4, lines 16-20). The assembly also includes a fan 4 that forcibly air-cools the heat sink 3 (column 4, line 21).

In the present Office Action, the Examiner attempts to read the elements of the Applicants' air stream distribution apparatus recited in independent claim 1 onto the heat sink-fan assembly in Manabe. However, Manabe does not teach or disclose all of the elements of the Applicants' claim 1.

For example, the Examiner indicates that the base 3a of the heat sink and the fins 3b of the heat sink in Manabe are analogous to the Applicants recitation of "a base configured to couple with a circuit board where the base defines a first

end and a second end” and “a plurality of deflectors in communication with the base and arranged in series between the first end and the second end defined by the base,” respectively. However, the fins 3b of Manabe are not operable as “deflectors” as claimed by the Applicants. As recited by the Applicants, each of “the plurality of deflectors are configured to *direct a corresponding portion of an air stream toward a respective area of the circuit board.*” Manabe merely discloses the heat sink as receiving heat from the MPU and radiating the heat to the ambient air. Furthermore, while the fan in Manabe is described as forcefully air cooling the heat sink, there is no teaching or suggestion in Manabe of the fins of the heat sink as directing “*a corresponding portion of an air stream toward a respective area of the circuit board*” as claimed by the Applicant in independent claims 1 and 19. If the rejection of claims 1 and 19 are to be maintained, the Applicants respectfully request that it be pointed out with particularity where the cited prior art teaches this element.

For the reasons stated above, independent claims 1 and 19 patentably distinguish over the cited prior art, and the rejection of claims 1 and 19 under 35 U.S.C. §102(e) should be withdrawn. Accordingly, claims 1 and 19 are in allowable condition. Further, claims 2-5, which depend upon claim 1 and claims 20-23 which depend upon claim 19 are also allowable for the same, and other, reasons.

As indicated above, independent claims 6, 12, and 18 were also rejected under 35 U.S.C. §102(e) as being anticipated by Manabe.

Claim 6 recites an air stream distribution assembly having at least one circuit board component configured to couple to a circuit board and an air stream distribution apparatus. The air stream apparatus includes a base configured to couple with the circuit board, the base defining a first end and a second end. The apparatus also includes a plurality of deflectors in communication with the

base and arranged in series between the first end and the second end defined by the base. Each of the plurality of deflectors define a leading edge, the leading edge of each of the plurality of deflectors defining a height relative to a plane defined by the base, the height defined by the leading edge of each deflector increasing along an air stream direction between the first end and the second end defined by the base. Each of the plurality of deflectors are configured to *direct a corresponding portion of an air stream toward the at least one circuit board component.*

Claim 12 recites a circuit board assembly having a circuit board, at least one circuit board component coupled to the circuit board, and an air stream distribution apparatus. The air stream distribution apparatus includes a base configured to couple with the circuit board, the base defining a first end and a second end. The apparatus also includes a plurality of deflectors in communication with the base and arranged in series between the first end and the second end defined by the base. Each of the plurality of deflectors define a leading edge, the leading edge of each of the plurality of deflectors defining a height relative to a plane defined by the base, the height defined by the leading edge of each deflector increasing along an air stream direction between the first end and the second end defined by the base. Each of the plurality of deflectors are configured to *direct a corresponding portion of an air stream toward the at least one circuit board component.*

Claim 18 recites a computer system having a frame, a fan assembly coupled to the frame and configured to generate an air stream, and at least one circuit board assembly coupled to the frame. The circuit board assembly includes a circuit board, at least one circuit board component coupled to the circuit board, and an air stream distribution apparatus. The air stream distribution apparatus includes a base configured to couple with the circuit board, the base defining a first end and a second end. The apparatus also includes a

plurality of deflectors in communication with the base and arranged in series between the first end and the second end defined by the base. Each of the plurality of deflectors define a leading edge, the leading edge of each of the plurality of deflectors defining a height relative to a plane defined by the base, the height defined by the leading edge of each deflector increasing along an air stream direction between the first end and the second end defined by the base. Each of the plurality of deflectors are configured to *direct a corresponding portion of an air stream toward the at least one circuit board component*.

Each of the independent claims 6, 12, and 18 recite the deflectors as being configured to *direct a corresponding portion of an air stream toward a circuit board component*. As indicated above, Manabe merely discloses a heat sink as receiving heat from the MPU and radiating the heat to the ambient air. Furthermore, while the fan in Manabe is described as forceably air cooling the heat sink, there is no teaching or suggestion in Manabe of the fins of the heat sink as directing “*a corresponding portion of an air stream toward a circuit board component*” as claimed by the Applicant in independent claims 6, 12, and 18. If the rejection of claims 6, 12, and 18 are to be maintained, the Applicants respectfully request that it be pointed out with particularity where the cited prior art teaches this element.

For the reasons stated above, independent claims 6, 12, and 18 patentably distinguish over the cited prior art, and the rejection of claims 6, 12, and 18 under 35 U.S.C. §102(e) should be withdrawn. Accordingly, claims 6, 12, and 18 are in allowable condition. Further, claims 7-11, which depend upon claim 6 and claims 13-17, which depend upon claim 12 are also allowable for the same, and other, reasons.

Rejections under §103

Claims 5, 10, and 16 were rejected under 35 U.S.C. §103(a) as being unpatentable over Manabe in view of U.S. Patent No. 5,343,362 to Solberg.

Claim 5 depends from independent claim 1, claim 10 depends from independent claim 6, and claim 16 depends from independent claim 12. Because claims 5, 10, and 16 depend upon allowable independent claims, these claims should be allowed to issue in light of the rejection.

Newly Added Claims

Claims 24-27, which depend from claim 1, have been added and are believed to be in allowable condition. Support for claims 24 and 25 is provided within the Specification, for example, in Fig. 4 and on page 11, line 21 through page 12, line 6. Support for claim 26 is provided within the Specification, for example, on page 12, lines 13-23. Support for claim 27 is provided within the Specification, for example, on page 17, line 21 through page 18, line 5. No new matter has been added by the amendments.

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Conclusion

In view of the foregoing remarks, this Application should be in condition for allowance. A Notice to this affect is respectfully requested. If the Examiner believes, after this Response, that the Application is not in condition for allowance, the Examiner is respectfully requested to call the Applicants' Representative at the number below.

The Applicants hereby petition for any additional extension of time which is required to maintain the pendency of this case.

If the enclosed papers or fees are considered incomplete, the Patent Office is respectfully requested to contact the undersigned collect at (508) 616-2900, in Westborough, Massachusetts.

Respectfully submitted,

A handwritten signature in black ink, appearing to read 'J. Duquette', is written over a horizontal line.

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